The data, following NCPC definitions and guidance, indicates that the baseline (Pre-BRAC) employee-parking supply ratio is 0.40 spaces per employee (or 1 space for every 2.5 employees). This was computed by using the staff parking spaces (2,863) and the adjusted employee population (7,059)[3].

3.0 BASELINE (PRE-BRAC) EMPLOYEE TRAVEL CHARACTERISTICS

As noted earlier, certain medical functions and employees from the Walter Reed Army Medical Center (WRAMC) in Washington, DC would be realigned to the NNMC Bethesda campus, as mandated by the Defense Base Closure and Realignment Act of 1990 (BRAC Law). Further campus development is also planned to support BRAC and other envisaged needs. These land use changes would accommodate approximately 2,500 additional employees and 484,000 additional visitors and patients annually. All planned campus development will be included in a Master Plan Update.

Based on the above, and to facilitate the transportation management analyses and recommendations presented later in this report, the current and projected travel characteristics of WRAMC and NNMC employees are summarized below.

3.1 WRAMC Employee Travel Characteristics

The Walter Reed Army Medical Center Main Section (WRAMC-MS) distributed a survey to its employees in November and December of 2002 via internet site of WRAMC. The survey was completed by 1,049 employees (representing 12% of the total population of 8,910). Key elements of the survey results are summarized below:

Residential Distribution

A large majority of the employees live in Maryland. The largest concentration of the residences is located directly to the north of the District of Columbia, in the Silver Spring and White Oak areas of Montgomery County, Maryland. Table 3 shows the breakdown of employee residences by state.

Table 3 Residential Location

Employees State of Residence	
Maryland	80.1 %
Virginia	14.2 %
District of Columbia	5.5 %
West Virginia	0.2 %

Commuting Distance and Time

The employee travel distance and time characteristics are presented in Tables 4 and 5, respectively. Table 4 shows that the majority of the employees travel more than 10 miles between home and work.

[3] The adjusted employee population and its underlying assumptions are presented in Appendix B - NNMC Master Plan Parking Analysis Assumptions.

Table 5 indicates that travel time to and from work is longer than 30 minutes for most employees.

Table 4 Distance from Home to Work

Miles WRAMC employees travel to work – one way	
Less than 2	1.3 %
2 – 5	9.3 %
5 - 10	20.3 %
Greater than 10	68.3 %

Table 5 Travel Time for Daily Commuter from Home to Work

Time WRAMC employees spend commuting to and from work			
Time spent traveling to work	**% of employees**	**Time spent traveling home from work**	**% of employees**
Less than 5 minutes	0.4 %	Less than 5 minutes	0.65 %
5 – 15 minutes	6.4 %	5 – 15 minutes	3.8 %
15 – 30 minutes	26.0 %	15 – 30 minutes	14.0 %
30 – 45 minutes	35.9 %	30 – 45 minutes	30.4 %
Greater than 45 minutes	30.6 %	Greater than 45 minutes	50.5 %

Commuting Mode Split

The percentage of employees using each mode of transportation is shown in Table 6. This data clearly indicates that the predominant commuting mode is drive alone, which was used by over 80 percent of the employees.

Table 6 Mode of Commute

Employee mode of travel to and from work (Average Weekday)	
Mode	**% of employees using mode**
Drove Alone	81.2 %
Carpool/Vanpool	8.0 %
Metrorail/Commuter Rail	3.2 %
Bus	1.4 %
Dropped Off	0.0 %
Walk/Bike	1.5 %
Other	4.7 %
Total	100.0%

Compressed Work Weeks

Some employees have compressed workweeks, i.e., four 10-hour days with one day off each week or four 9-hour days each week with one day off every other week. According to the results of the transportation survey, approximately 10 percent of the respondents are involved in a compressed work week program.

3.1.1 WRAMC Employee Attitudes Towards Alternative Modes

The WRAMC transportation survey also asked questions in order to determine the attitudes of employees towards carpooling, using mass transit, and working a compressed workweek. According to the results of the survey, there is some interest among the employees regarding the use of these modes, as noted below.

Employee Attitudes about Carpooling

The survey asked employees the reasons they do not carpool and what incentives would encourage them to use this mode. Table 7 shows the days employees indicated they would be interested in carpooling to or from work. Approximately 30 percent of the employees who responded to the survey are interested in carpooling during the week (Monday through Friday).

Table 7 Willingness to Use Carpool

Day	% of respondents interested in carpooling that day
Monday	29.6 %
Tuesday	31.7 %
Wednesday	30.9 %
Thursday	32.2 %
Friday	26.7 %
Saturday	1.1 %
Sunday	1.1 %

The survey also asked employees why they were not currently carpooling to or from work. The respondents provided several reasons for not carpooling, as indicated in Table 8. The primary factors include irregular work schedules, the need for a car before and after work, not having anyone to ride with and the desire to not depend on other people for a ride.

Table 8 Reasons for Unwillingness to Use Carpool

Reason	% of employees choosing reason
Irregular Work Schedule	46.4 %
Need car before or after work	43.9 %
Don't have anyone with whom to ride	34.3 %
Don't like to depend on others for a ride	34.1 %
Other	14.9 %
Need car at work for personal errands	13.3 %
Takes too much time	11.7 %
Need car at work for agency business	10.4 %
Live close to work	9.2 %
Costs more than driving alone	3.8 %
Need a specially equipped vehicle	0.3 %

The survey also asked the employees of WRAMC what would encourage them to share a ride to work in a carpool or vanpool. Various incentives were listed and the respondents were asked to choose five answers and rank them in importance with 1 being the most important and 5 being the least important. A points system was developed in order to determine the strategies which would encourage employees to share a ride to work. The calculation of points for a particular incentive was done by using a

weighted number of respondents. The number of respondents who indicated that a particular incentive was the most important was multiplied by 5. The number of respondents who indicated that this was their second most important answer was multiplied by 4, and so on. These weighted numbers were then added together in order to determine which strategies were the most important to the respondents of the survey. The results are presented in Table 9.

Table 9 Incentives to Use Carpool

Incentive	Weighted Points*
Guaranteed ride home in case of emergencies or unscheduled overtime	910
Help finding people with whom to share a ride	813
Regular shuttle service to metro station	634
Agency subsidy or payment	571
Preferential parking for carpoolers/vanpoolers	513
More flexible hours	443
Easier access to services for personal errands during the day	315
More fixed hours	285
Limited spaces for single occupancy vehicles and vigorous parking enforcement	270
Child care facilities at or near work site	176
Change of work shift	119

* See previous paragraph for discussion of how points were calculated

The incentive with the highest potential for increasing carpool usage is the provision of a guaranteed ride home in the case of emergency or unscheduled overtime. The Metropolitan Washington Council of Governments (MWCOG) currently operates a guaranteed ride home program which provides a free ride home for commuters who regularly carpool, vanpool, bike, or take transit to work in the case of emergencies or unscheduled overtime. The two next highest potential incentives appear to be the provision of ride matching information and assistance, and regular shuttle services to a Metrorail station.

Employees Attitudes about Transit

The commuting survey also attempted to determine the attitudes of employees towards the use of public transportation services. Table 10 indicates the key factors that would encourage employees to shift to public transportation for their commute to and from work.

Table 10 Incentives to Use Public Transit

Incentive	Weighted Points*
More frequent service and more convenient stops by public transit providers	782
Help finding bus or rail service to meet my schedule	580
Agency subsidy or payment for transit riders	566
Guaranteed ride home in case of emergencies or unscheduled overtime	552
Sale of transit passes on site	328
More flexible hours	322
More fixed hours	179
Child care facilities at or near work site	167
Limited spaces for single occupancy vehicles and vigorous parking enforcement	154
Easier access to services for personal errands during the day	150
Change of work shift	110

* Based on same methodology used for results in Table 9.

The incentive having the highest potential to increase transit usage is the provision of better route coverage and more frequent service. The next three highest incentives are the provision of transit real time information, transit subsidies and a guaranteed ride home in the case of emergencies.

Employees Attitudes about Compressed Workweeks

The transportation survey also attempted to determine the attitudes of employees towards working a compressed workweek. According to the results of the survey, approximately 55 percent of the employees at WRAMC are interested in working some type of compressed workweek. Of those employees, 67 percent indicated they would prefer to work four 10-hour days per week, 24 percent indicated they would like to work nine 9-hour days every two weeks. The remaining 9 percent indicated they would like to work another type of workweek not listed in the survey.

3.2 NNMC Employee Travel Characteristics

NNMC conducted an employee transportation survey in June 2007 in order to collect information on baseline (Pre-BRAC or May 2008) travel patterns and influences. (NNMC will update their transportation survey annually) A copy of the 2008 questionnaire survey is included as Appendix A. Approximately 16% of the total employee population (1,285 employees) completed the survey. The highlights of the survey results are presented below.

Residential Distribution

Based on the zip codes of the baseline (Pre-BRAC) employees, Table 11 summarizes the location of the residences. The findings show that over 53% of NNMC employees live in Montgomery County. The next highest areas of residential location are Prince George's County and Virginia.

Table 11 NNMC Residential Location

Employees State of Residence	
Montgomery County	53.0%
Frederick County	7.0 %
Prince George's County	11.0 %
Howard County	2.0%
Other MD	9.0 %
Washington, DC	6.0%
Virginia & Other	12.0%
Total	100.0%

Figure 6 identifies where current NNMC employees live by zip code in relation to the NNMC campus. This figure shows that NNMC employees live throughout the region with a concentration of employees living to the north of the NNMC campus.

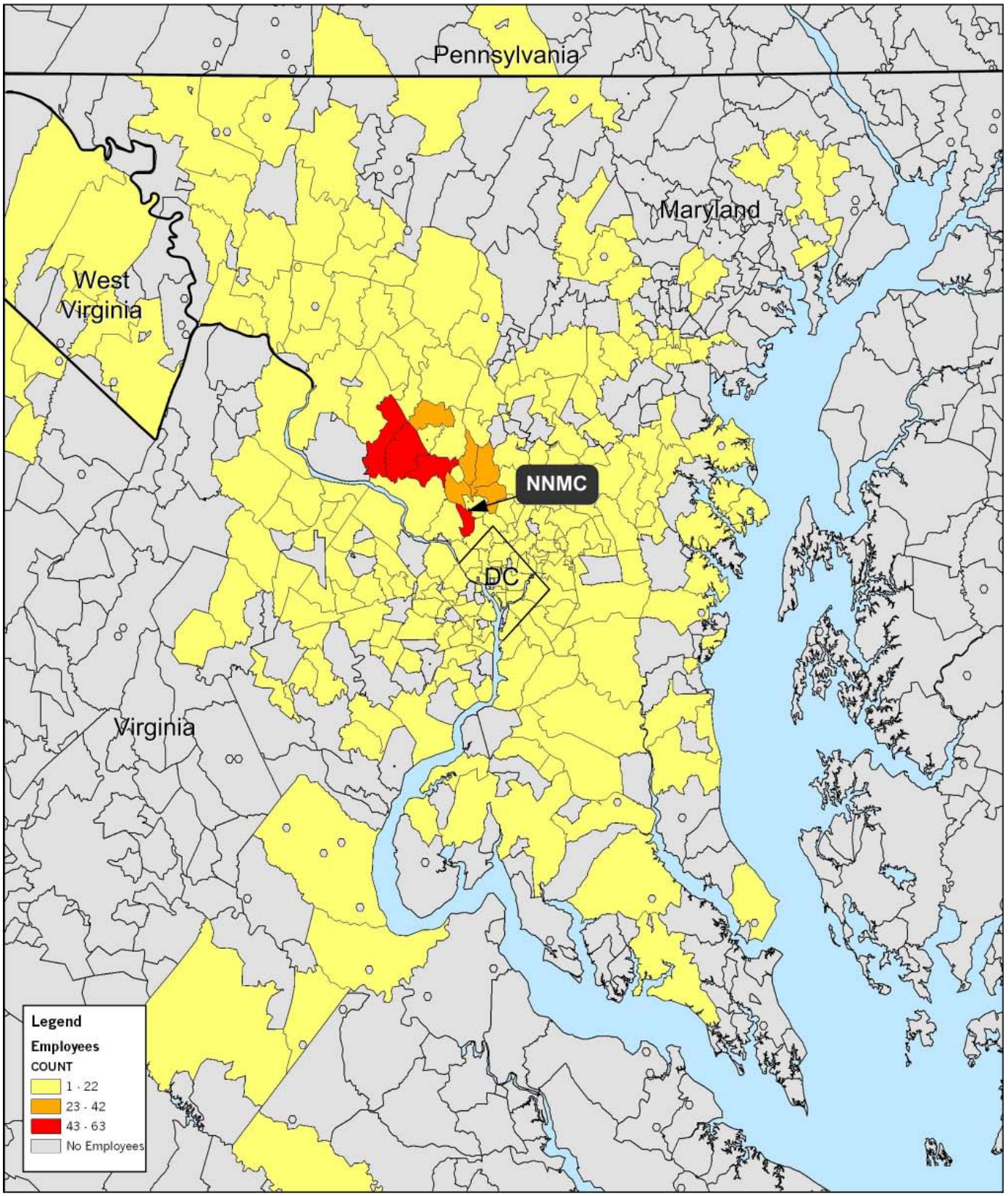

Figure 6 - Location of NNMC Employee Residences by Zip Code

Commuting Mode Split

The percentage of employees using each mode of transportation is shown in Table 12. This data indicates that the predominant commuting mode is drive alone, involving over 70 percent of the employees.

Table 12 NNMC Mode of Commute

Employee mode of travel to and from work (Average Weekday)	
Mode	**% of employees using mode**
Drove Alone	72.4%
Carpool	8.8%
Vanpool	4.7%
Metrorail	9.9%
Commuter Rail	1.2%
Bus	0.2%
Dropped Off	1.9%
Walk/Bike	0.4%
Other	0.5%
Total	100.0%

Current Work Schedule

Employees were asked about their current work schedules. Of the 1,285 survey respondents, almost 70 percent indicated that they typically work consistent hours. The start and end times for the employees with consistent schedules are spread out between 6:00 - 9:00 AM and 3:00 - 6:00 PM.

Transit Subsidies

Eleven percent (11%) of the employee survey respondents indicated that they receive transit subsidies.

Willingness to Use Alternative Mode

The survey asked employees if they were willing to shift to an alternative commuting mode and what incentives would cause them to make this change. Table 13 summarizes the survey results. The incentives that could have the greatest influence in shifting employee to alternative commuting modes are the provision of express bus from the home community to work, flexible work schedules and transit subsidies.

Table 13 NNMC Willingness to use alternative mode

	First Choice		Second Choice	
	Number of Employees	Percentage	Number of Employees	Percentage
I do not drive alone	147	11%	108	8%
Extended daycare hours	18	1%	20	2%
Daycare services on-site	23	2%	23	2%
Discounted bus or rail passes	124	10%	133	10%
Flexible work schedule	214	17%	196	15%
Express bus from your community to work	283	22%	185	14%
Ride-matching services for car/van-pooling	79	6%	94	7%
Emergency or guaranteed ride-home, free	63	5%	115	9%
Preferential parking for car/van-pooling	33	3%	62	5%
Free shuttle from NNMC to Metrorail station	46	4%	67	5%
Transit subsidy up to $100 per month	186	14%	178	14%
Other	67	5%	103	8%
Total	1283		1284	